- ***Basic Research***

Effect of Nursing Intervention Guidelines on Knowledge and Self-care Practices among Adult Patients Undergoing Cataract Surgery

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Abstract

Background: Cataracts now account for the largest proportion of the global burden of blindness and vision loss worldwide. Inadequate postoperative nursing interventions related to knowledge and self-care practices may lead to serious complications for the patient with cataract surgery. **Aim of the study:** The study aimed to evaluate the effect of nursing intervention guidelines on knowledge and self-care practices among adult patients undergoing cataract surgery. **Design and Setting:** A quasi-experimental research design was utilized. The study was carried out in the surgical ophthalmology inpatient department and the ophthalmology outpatient clinics. Alexandria Main University Hospital, Egypt. **Subjects:** It was a convenience sample of 60 adult male and female patients. **Tools:** two tools were used for data collection; **Tool I:** Cataract surgery patient's assessment: structured interview schedule, It was divided into three parts, **Part I:** Patient's sociodemographic data, **Part II:** Patient's clinical data and **Part III:** Patient's level of knowledge .**Tool II:** Self-care practices scale. **Results:** (96.7%, and 96.7% respectively) of patients in the control group had unsatisfactory level of knowledge compared to (90%, 36.7% respectively) of patients in the study group pre, and post implementation of nursing interventions. In addition to the overall score of post-operative level of self- care practices was unsatisfactory (100%, and 100% respectively) of patients in the control group in the first and second follow up periods, compared to satisfactory level of self-care practices (100%, 98% respectively) of patients in the study group. **Conclusion:** The study group showed improvement in all of their total scores of knowledge level and self-care practices after application of the nursing interventions guidelines compared with the control group. **Recommendation:** Replication of the current study with a bigger statistical sample size selected from different regions and a longer follow-up period in order to get more broadly applicable findings.

Key words: Cataract surgery, Knowledge level, Nursing intervention guidelines, Self-care practices.

1. Introduction

A cataract is the loss of the optical consistency of a crystalline lens. It can manifest as anything from slight fluctuations in the lens's initial purity to total cloudiness. Cataracts are the primary cause of vision loss in those over 40 and the primary cause of blindness worldwide. It is estimated that 285 million individuals suffer from visual impairments globally, of which 39 million are blind and 246 have low vision. Moreover, about 50% of blindness worldwide is caused by cataracts. Approximately 90% of visually impaired people worldwide reside in low-income nations. Cataract accounts for half of blindness in developing countries and only 5% of blindness in developed countries. **(Kentayiso et al., 2023; Jiang et al., 2023)**. In Egypt, more than 60% of blind people require surgery due to cataracts. WHO statistics indicates that there are one million blind people and three million visually impaired people living in Egypt. **(WHO., 2019 ; Taha., 2021)**.

Because only a small portion of the lens is affected by clouding, a cataract may not cause any visual disturbances at first. However, as the cataract grows, a variety of symptoms may notice, such as blurry vision, difficulty seeing at night, faded colours, increased sensitivity to sun or other bright light glare, difficulty driving, especially at night, surrounding light halos, double vision in the affected eye, and a frequent need to change prescription glasses. Cataracts often cause vision loss very gradually because they deteriorate vision, making it harder to see minute details. Patients and their family may also experience significant psychological stress as a result of low vision. A person's ability to execute daily activities is impacted when their vision deteriorates, and cataract surgery is suggested (**Taha., 2021; Abdel Azeem et al., 2019)**.

Using eye drops or other procedures to treat cataracts does not eliminate the condition. If the symptoms are not interfering with the performing activities of daily living, just need a stronger prescription for glasses, magnifying glasses, or anti-glare sunglasses. When cataracts interfere with everyday tasks like driving or reading, surgery is advised. Additionally, it's done when treating other eye conditions is hampered by cataracts (**Abdel Azeem et al., 2019**). Cataracts can only be effectively treated surgically, in which the original lens is extracted and replaced with a synthetic one. The World Health Organization (WHO) has ranked cataract surgery as one of the most economical medical procedures. Furthermore, with the development of surgical technology, surgical vision can be recovered quickly (**Du et al., 2022).**

Surgical outcomes may be compromised if postoperative complications occur, such as eye infection, edema and presence of fluid in the center of the nerve layer (crystalloid macular edoema), corneal edoema, haemorrhage in the front of the eye, rupture capsule , fluid loss , and retinal detachment (**Qiu., 2023**). Thus, adequate postoperative nursing interventions to improve patient's knowledge and self-care practices are required, to prevent serious complications for the cataract surgery patient.

In every facet of cataract surgery, nurses are vital to the process. The difficulties are to prevent or delay the occurrence of complications, and promptly manage any which does occur. Therefore, increasing patient awareness is essential and will have a positive impact on their postoperative self-care practices, resulting in a decreased incidence of problems after surgery. Therefore, the purpose of this study is to evaluate the effect of nursing intervention guidelines on knowledge and self-care practices among adult patients undergoing cataract surgery.

Aim of the study:

This study aimed to evaluate the effect of nursing intervention guidelines on knowledge and self-care practices among adult patients undergoing cataract surgery.

Research hypotheses of the study:

H_1. Patients who follow the nursing intervention guidelines exhibit improved knowledge level than the patients who don't follow the nursing intervention guidelines.

H_2. Patients who follow the nursing intervention guidelines exhibit improved level of self-care practices than the patients who don't follow the nursing intervention guidelines.

2. Materials and Method

Materials

Research design:

A quasi-experimental research design was utilized.

Settings:

The study was carried out at the surgical ophthalmology inpatient department and the ophthalmology outpatient clinics of Alexandria Main University Hospital, Alexandria, Egypt.

Subjects:

The study subjects comprised a convenience sample of 60 adult male and female patients who were admitted to the previous mentioned setting for performing cataract surgery, The patients were divided randomly by using (computer generated randomization) into two equal groups (control and study), thirty patients each. The control group was received only the routine instructions provided in the hospital, while the study group was received the nursing intervention guidelines. All studied patients were selected according to the following criteria:

- Both gender adult patients ranging from 20- 60 years old.
- Scheduled for cataract surgery for the first time.
- Admitted to the hospital at least 24 hours before surgery.

Sample size calculation: EPI INFO program was used to calculate the sample size applying the following parameters:

- Population size = 200 over 3 months.
- Expected frequency = 50%.
- Acceptable error = 10%.
- Confidence co-efficient = 95%.
- Minimum sample size = 60.

Tools for data collection: In order to fulfill the objective of the study, two tools were used for data collection.

Tool I: Cataract surgery patient's assessment: structured interview schedule:

This tool was developed by the researchers after reviewing the related literatures (**Elgazar et al., 2017; Hugosson et al., 2020 & López Sánchez et al., 2021)**, to collect baseline data. It was divided into three parts as the following:

Part I: Patient's sociodemographic data: Including age, gender, educational level, marital status, occupation and income.

Part II: Patient's clinical data: This part was utilized to obtain data about the clinical history of the patients such as medical history, prescribed medications, duration of cataract, presence of other diseases in the eyes, wearing eye glasses, and family history.

Part III: Patient's level of knowledge. This part was designed to assess patient's knowledge of cataract surgery. It included closed ended questions concerning information related to definition of cataract, causes, risk factors, signs and symptoms, complications, treatment and knowledge related to self-care practices postoperatively.

Scoring system of patient's level of knowledge:

- Patient's knowledge answers were scored on 3 points Likert scale as the following:
  - Correct and complete answer was scored =3
  - Correct and incomplete answer was scored= 2
  - Wrong answer or don't know was scored =1
- Each patient's overall score was totaled and translated to a percentage. The percent score of this scale was classified as the following:
  - Scoring of 60% and above was considered as **satisfactory** level of knowledge.
  - A score less than 60% were considered **unsatisfactory** level of knowledge.

Tool II: - Self-care practices scale: It was adapted from **NA Mahfouz et al. (2019)**. This scale was used to assess patient's self-care practices post cataract surgery. It consists of 15-items measuring 4 domains, eye drops (4 items), hygiene (3 items), protection of operation site (6 items), and activities of daily life (2 items). Each item answered on a 3-point rating scale (1= not done, 2= sometimes done, 3= always done) . A total score for every patient was summed up and converted into percent score. The percent score of this scale was classified as the following:

- Scoring of 70% and above was considered as satisfactory.
- A score less than 70% were considered unsatisfactory.

Method

- ✓ Approval from the Research Ethics committee, Faculty of Nursing, Alexandria University was obtained.
- ✓ A written approval to carry out the study was submitted from the Faculty of Nursing to the administrative authorities to collect data and permission was obtained after explaining the purpose of the study.
- ✓ Tool I was developed by the researchers after reviewing the relevant literatures (**Elgazar et al., 2017; Hugosson et al., 2020 & López Sánchez et al., 2021)**.
- ✓ Tool II was adapted from Mahfouz EN et al., (2019).
- ✓ **Content and construct validity of the study tool** were established by a jury of five experts in the fields of Medical Surgical Nursing and Ophthalmology Medicine. The necessary modifications were introduced.
- ✓ **The tools reliability** were tested using Cronbach's Alpha Coefficient Test (r=0.891, r= 0.882), which denote high reliability.
- ✓ **A pilot study** was conducted on six patients at the beginning of the study to test the feasibility and applicability of the tools; these patients were excluded from the actual study sample.
- ✓ **Data Collection:** The study was conducted through four phases, namely; assessment, planning, implementation and evaluation phase.

1. **Assessment phase:**

Initial assessment was carried out for both groups (control & study) on preoperative period at the inpatient surgical ophthalmology unit, Alexandria Main University Hospital, to

assess baseline data about sociodemographic data, clinical data and patient's level of knowledge, using tool I.

2. Planning phase:

- ✓ Focusing on the data obtained from the initial assessment phase, the planning of nursing intervention guidelines was developed for patients by the researchers. The nursing intervention guidelines included two sessions (one session preoperatively, and one session postoperatively)
  - ➢ **Preoperative session**: Include the basic information about cataract surgery and required self-care practices were prepared. Leaflets, power point presentation, and videos were made available to be used as instructional media.
  - ➢ **Postoperative session**: The correct steps of eye drop installation and eye care post cataract surgery was searched to be demonstrated for the study group and pre- discharge instructions.
- ✓ Demonstration and re demonstration were formulated for the patients of the study group.

3. Implementation phase:

- ✓ The researchers used to attend to the study setting every day except Friday (the off-day of cataract surgery's department) during the period of data collection, to meet the newly admitted patients, and identify those satisfying the inclusion criteria.
- ✓ The nursing intervention guidelines were conducted as follows:

- **Preoperative session:** one preoperative session was given to each patient in the study group individually. The session took around 35-40 minutes, during which researcher met with each patient individually to provide them the instructions about surgery and postoperative care. The session includes the following:
  - ✓ The basic information about cataract, definition, causes, risk factors, symptoms, complications, and treatment.
  - ✓ Preoperative preparation.
  - ✓ Instructions were given to patients' family about care for cataract surgery's patient.
  - ✓ Patients received a demonstration of procedures related to eye drops installation and eye care after cataract surgery
- **Postoperative session:**
  - ✓ Re-demonstrated the steps of procedures related to eye drops installation and eye care.
  - ✓ Knowledge for patient and patient family regarding use of eye drops and ointment, hygiene, wearing eye shield and protection of the eye, precautions to prevent infection, activities of daily life as (exercise and avoiding heavy lifting), unusual symptoms, and follow–up.

4. Evaluation phase:

The outcome of the nursing intervention guidelines was assessed in the ophthalmology outpatient clinics during follow up periods, by assessing:

- ➢ The level of knowledge for the patients of both groups during follow up in the postoperative period, using tool I.
- ➢ Self-care practices two times for the patients of both groups: on 2^{nd}, and 7^{th} day postoperatively, in the ophthalmology outpatient clinics using tool II.

- ✓ Data collection took a period of 3 months from the beginning of August 2023 till the end of October 2023, to evaluate the effectiveness of the nursing intervention guidelines on knowledge and self-care practices among patients undergoing cataract surgery, comparison was done between the control and study group patients using proper statistical analysis.

Ethical Considerations:

- Written informed consent was obtained from each patient included in this study after explanation the purpose of the study.
- The patient was informed that his/her participation in the study is voluntary, he/she can withdraw from the study at any time, and his/her withdrawal would not affect the received care from hospital.
- Anonymity of patients was maintained.
- Privacy of patients was maintained.
- Confidentiality of the collected data was assured.
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Statistical analysis of the data:

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. Qualitative data were described using number and percent. The Shapiro-Wilk test was used to verify the normality of distribution. Quantitative data were described using mean and standard deviation, Significance of the obtained results was judged at the 5% level.

The used tests were:

1 - Chi-square test: For categorical variables, to compare between different groups.

2 - Fisher's Exact or Monte Carlo correction: Correction for chi-square when more than 20% of the cells have expected count less than 5.

3- Student t-test: For normally distributed quantitative variables, to compare between two studied.

4 - F-test (ANOVA): For normally distributed quantitative variables, to compare between more than two groups.

3. Results:

Table (1): Shows comparison between the control and study group patients according to socio-demographic data. Regarding the mean age of the control group it ranges (49.50 ±7.92), compared to (52.57 ±5.98) for the study group patients. More than one half of both groups were females (60.0%,53.3% respectively). The highest percentage of both groups were married (80.0%,63.3% respectively). Less than two thirds of the control group patients were illiterate (60%), compared to 40% of the study group patients. The highest percentage of both groups were housewives (46.7%,46.7% respectively). Less than two third of the control group patients didn't have enough income (60.0%) compared to (56.6%) of the study group patients.

Table (2): Declares comparison between the control and study group patients according to their clinical data. The highest percentage of both control and study group patients had history of diabetes mellitus and receiving antidiabetic medications (53.3%, and 70% respectively). (60.0%) of the control and (66.6%) of the study group patients didn't

receive their medications regularly. One third (33.3%) of the control group patients and more than one third (36.7%) of the study group patients, the duration of cataract ranged from 6-12 months. Around one half of both groups had cataract in both eyes (53.3%, and 50% respectively). The majority of both groups didn't wear eye glasses (73.3%, and 80% respectively). More than one half of both groups had positive family history (53.3%, and 60% respectively).

Table (3): Revealed comparison between the control and study group patients according to total scores of patient's levels of knowledge pre and post implementation of nursing intervention**.** The results showed that, (96.7%, and 96.7% respectively) of patients in the control group had unsatisfactory levels of knowledge pre, and post implementation of nursing intervention, compared to (90%, 36.7% respectively) of patients in the study group, with statistically significant difference among them post implementation of nursing intervention (p_2 =0.001*).

The findings also showed that, the mean scores for patient's level of knowledge in the control group were (3.03 ± 2.50, 3.33 ± 2.99 respectively) pre, and post implementation of nursing intervention, compared to (3.30 ± 2.98, 6.37 ± 4.87 respectively) of patients in the study group, with statistically significant difference within the study group (F= 12.715* p=0.000*). Moreover, there was a significant difference among both control and study group patients post implementation of nursing intervention (p_2=0.005*).

Table (4): Illustrates comparison between the control and study group patients according to their total scores of post-operative self-care practices during the different periods of follow up. Regarding **eye drops**, the total score was (7.20 ± 1.0, and 6.20 ± 1.0 respectively) of patients in the control group in the first and second follow up periods, compared to (11.93±0.25, 11.93±0.25 respectively) of patients in the study group, with statistically significant difference among both groups in the first and second follow up periods (p_1= <0.001*, p_2=<0.001*). Concerning **hygiene,** the total score was (4.60 ± 1.52, and 4.60 ± 1.52 respectively) of patients in the control group in the first and second follow up periods, compared to (8.93 ±0.25, 7.93 ±0.25 respectively) of patients in the study group, with statistically significant difference among both groups in the first and second follow up periods (p_1= <0.001*, p_2 =<0.001*).

In relation to **protection of operation site,** the total score was (9.20 ±1.83, and 8.20± 1.83respectively) of patients in the control group in the first and second follow up periods, compared to (17.13±1.33, and 17.13±1.33 respectively) of patients in the study group, with statistically significant difference among both groups in the first and second follow up periods (p1= <0.001*, p_2=<0.001*). Regarding **activities of daily life,** the total score was (4.60 ± 0.62, and 5.80 ± 0.42 respectively) of patients in the control group in the first and second follow up periods, compared to (5.80 ± 0.41, 4.79 ± 0.41 respectively) of patients in the study group, with statistically significant difference among both groups in the first and second follow up periods (p_1= <0.001*, p_2=<0.001*).

Table (5): Represents comparison between the control and study group patients according to overall score of post-operative self-care practices during the different periods of follow up. The total score of post-operative level of self- care practices was unsatisfactory (100%, and 100% respectively) of patients in the control group in the first and second follow up periods, compared to satisfactory level of self-care practices (!00%, 98% respectively) of patients in the study group, with statistically significant difference among both groups in the first and second follow up periods (p1= <0.001*, p2 =<0.001*).

Table (6): Depicts the relation between sociodemographic data and overall total scores of patient's self-care practices post-operative. There was a statistically significant overall total score of patient's self-care practices post-operative and their gender, occupation and income

(p= 0.013, <0.001, 0.002respectively) in the study group

Table (7) : Depicts the relations between clinical data and overall total scores of patient's self-care practices post-operative. There was a statistically significant relation between overall total score of patient's post-operative self-care practices and the time since the patients were diagnosed and presence of other diseases in the eyes (p= 0.027, 0.002 respectively) in the study group.

Table (1): Comparison between the control and study group patients according to socio-demographic data (n =60).

Socio- demographic data	Control group (n = 30)		Study group (n = 30)		Test of Sig. (p)
	No.	%	No.	%	
Age					
Min – Max.	26.0 – 59.0		40.0 – 59.0		t=1.694 (0.096)
Mean ± SD.	49.50 ± 7.92		52.57 ± 5.98		
Gender					
Male	12	40.0	14	46.7	χ^2=1.071 (0.301)
Female	18	60.0	16	53.3	
Marital status					
Married	24	80.0	19	63.3	χ^2=5.520 (^{MC}p=0.091)
Single	2	6.7	7	23.3	
Widow	4	13.3	2	6.7	
Divorced	0	0.0	2	6.7	
Educational level					
Illiterate	18	60.0	12	40.0	χ^2=5.633 (0.133)
Read and write	4	13.3	2	6.7	
Primary	6	20.0	8	26.7	
Secondary	2	6.7	8	26.7	
Occupation					
Employee	2	6.7	5	16.7	χ^2=5.780 (^{MC}p=0.123)
House wife	14	46.7	14	46.7	
Manual worker	8	26.7	9	30.0	
Not work	6	20.0	2	6.7	
Income (from the patient's point of view)					
Not enough	18	60.0	17	56.6	χ^2=3.354 (0.067)
Enough	12	40.0	13	43.3	

S-D: **Standard deviation** **t: Student t-test** χ^2: **Chi square test** MC: **Monte Carlo**
p: p value for comparing between the two studied groups

Table (2): Comparison between the control and study group patients according to their clinical data (n =60).

Clinical data.	Control group (n = 30)		Study group (n = 30)		χ^2 (p_1)
	No.	%	No.	%	
# Medical history:					
No	14	46.7	17	56.7	0.601 (0.438)
Cardiovascular	4	13.3	3	10.0	0.162 (^{FE}p=1.000)
Diabetes	16	53.3	21	70.0	1.763 (0.184)
Hypertension	8	26.7	12	40.0	1.200 (0.273)
Rheumatoid	2	6.7	0	0.0	2.069 (^{FE}p=0.492)
Respiratory	2	6.7	0	0.0	2.069 (^{FE}p=0.492)
Renal	0	0.0	0	0.0	–
Digestive	2	6.7	0	0.0	2.069 (^{FE}p=0.492)
Tumors	0	0.0	0	0.0	–
# Prescribed medication:					
No	14	46.7	17	56.7	0.601 (0.438)
Cardiovascular	4	13.3	3	10.0	0.162 (^{FE}p=1.000)
Diabetes	16	53.3	21	70.0	1.763 (0.184)
Hypertension	8	26.7	12	40.0	1.200 (0.273)
Rheumatoid	2	6.7	0	0.0	2.069 (^{FE}p=0.492)
Respiratory	2	6.7	0	0.0	2.069 (^{FE}p=0.492)
Renal	0	0.0	0	0.0	–
Digestive	2	6.7	0	0.0	2.069 (^{FE}p=0.492)
Tumors	0	0.0	0	0.0	–
Receiving medication regularly:					
Yes	12	40.0	10	33.3	0.404
No	18	60.0	20	66.6	(0.817)
Duration of cataract:					
<3m	8	26.7	10	33.3	1.047 (^{MC}p= 0.830)
3 – <6m	4	13.3	4	13.3	
6 – 12m	10	33.3	11	36.7	
12 – 24m	8	26.7	5	16.7	
Presence of cataract in:					
One eye.	14	46.7	15	50.0	0.067
Both eyes.	16	53.3	15	50.0	(0.796)
Presence of other diseases in the eyes					
No	30	100.0	28	93.3	2.069 (^{FE}p=0.492)
Conjunctivitis	0	0.0	0	0.0	
Retinal detachment	0	0.0	2	6.7	
Wearing eye glasses:					
No	22	73.3	24	80.0	0.373 (0.542)
Yes	8	26.7	6	20.0	
Family history:					
No	14	46.7	12	40.0	χ^2=1.071 (0.301)
Yes	16	53.3	18	60.0	

χ^2: **Chi square test** MC: **Monte Carlo** FE**: Fisher Exact #: More than one answer was selected**
p: p value for comparing between the two studied groups

Table (3): Comparison between the control and study group patients according to total scores of patient's levels of knowledge pre and post implementation of nursing intervention. (n =60)

Total scores of patient's levels of knowledge	Control group (n =30)				Study group (n =30)				Test of Sig.(p_1)	Test of Sig.(p_2)
	Pre implementation of nursing intervention		Post implementation of nursing intervention		Pre implementation of nursing intervention		Post implementation of nursing intervention			
	No.	%	No.	%	No.	%	No.	%		
Unsatisfactory (<60%)	29	96.7	29	96.7	27	90.0	11	36.7	χ^2=1.071 p=0.301	χ^2= 10.417* (0.001*)
Satisfactory (≥60%)	1	3.3	1	3.3	3	10.0	19	63.3		
$\chi^2(p_0)$	χ^2=**1.694** **p=0.429**				χ^2=**16.39*** **p= 0.000***					
Total Score										
Min – Max.	0.0 – 9.0		0.0 – 13.0		0.0 – 11.0		1.0 – 14.0			
Mean ± SD.	3.03 ± 2.50		3.33 ± 2.99		3.30 ± 2.98		6.37 ± 4.87			
% Score									t=0.141 p=0.709	t=8.465* p=0.005*
Min – Max.	0.0 – 64.29		0.0 – 92.86		0.0 – 78.57		7.14 – 100.0			
Mean ± SD.	21.67 ± 17.84		23.81 ± 21.33		23.57 ± 21.32		45.48 ± 34.76			
F (p_0)	**F=0.274** **p=0.761**				**F= 12.715*** **p=0.000***					

χ^2: **Chi square test**
t: Student t-test **F: F test (ANOVA) with repeated measures**
p_0: p value for comparing pre and post implementation of nursing intervention in each studied group
p_1: p value for comparing between the studied groups in pre implementation of nursing intervention.
p_2: p value for comparing between the studied groups in post implementation of nursing intervention.
*: Statistically significant at $p \leq 0.05$

Table (4): Comparison between the control and study group patients according to their total scores of post-operative self-care practices during the different periods of follow up (n =60)

Total scores of post-operative self-care practices	Control group (n = 30)		Study group(n = 30)		t (p_1)	t (p_2)
	1st follow up (after 2 days)	2nd follow up (after one week)	1st follow up (after 2 days)	2nd follow up (after one week)		
Eye drops:						
Total Score	7.20 ± 1.0	6.20 ± 1.0	11.93±0.25	11.93±0.25	25.211*	25.211*
Average Score	1.80 ±0.25	1.79 ± 0.25	2.98 ± 0.06	2.98 ± 0.06	(<0.001*)	(<0.001*)
Hygiene:						
Total Score	4.60 ± 1.52	4.60 ± 1.52	8.93 ±0.25	7.93 ±0.25	15.380*	14.379*
Average Score	1.53 ± 0.51	1.53 ± .51	2.98 ± 0.08	2.95 ± 0.07	(<0.001*)	(<0.001*)
Protection of operation site:						
Total Score	9.20 ±1.83	8.20 ± 1.83	17.13±1.33	17.13±1.33	19.217*	19.217*
Average Score	1.53 ± 0.30	1.43 ± 0.30	2.86 ± 0.22	2.86 ± 0.22	(<0.001*)	(<0.001*)
Activities of daily life:						
Total Score	4.60 ± 0.62	5.80 ± 0.42	5.80 ± 0.41	4.79 ± 0.41	8.849*	7.845*
Average Score	1.87 ± 0.35	2.87 ± 0.35	2.80 ± 0.41	2.79 ± 0.40	(<0.001*)	(<0.001*)

Data was expressed in mean ± SD SD: **Standard deviation** **t: Student t-test**
p_1: p value for comparing between the both studied groups in 1st follow up period
p_2: p value for comparing between the both studied groups in 2nd follow up period
Statistically significant at $p \leq 0.05$

Table (5): Comparison between the control and study group patients according to overall score of post-operative self-care practices during the periods of follow up (n =60)

Overall post-operative level of self-care practices	Control group(n = 30)				Study group(n = 30)				χ^2 (p_1)	χ^2 (p_2)
	1st follow up (after 2 days)		2nd follow up (after one week)		1st follow up (after 2 days)		2nd follow up (after one week)			
	No.	%	No.	%	No.	%	No.	%		
Unsatisfactory (<70%)	30	100.0	30	100.0	0	0.0	2	6.66	60.000* (<0.001*)	59.000* (<0.001*)
Satisfactory (≥70%)	0	0.0	0	0.0	30	100.0	28	93.33		

χ^2: **Chi square test**
p_1: p value for comparing between the both studied groups in 1st follow up period
p_2: p value for comparing between the both studied groups in 2nd follow up period
*: Statistically significant at $p \leq 0.05$

Table (6): The relation between sociodemographic data and overall total scores of patient's self-care practices post-operative. (n =60)

Socio-demographic data	Overall total scores of patient's self-care practices post-operative					
	N	Control group (n = 30) Mean ± SD.	Test of Sig. (p)	N	Study group (n = 30) Mean ± SD.	Test of Sig. (p)
Gender						
Male	**12**	25.33 ± 2.53	t=0.391 (0.699)	**14**	44.71 ± 0.73	t=2.753* (0.013*)
Female	**18**	25.78 ± 3.69		**16**	43.0 ± 2.37	
Marital status						
Married	**24**	25.42 ± 3.05	F=1.233 (0.307)	**19**	43.63 ± 1.98	F=0.544 (0.656)
Single	**2**	29.0 ± 0.0		**7**	43.57 ± 2.44	
Widow	**4**	25.0 ± 4.62		**2**	45.0 ± 0.0	
Divorced	**0**	–		**2**	45.0 ± 0.0	
Educational level						
Illiterate	**18**	26.0 ± 3.18	F=2.468 (0.084)	**12**	43.33 ± 2.35	F=1.292 (0.298)
Read and write	**4**	24.0 ± 4.62		**2**	42.0 ± 4.24	
Primary	**6**	24.0 ± 0.0		**8**	44.25 ± 1.39	
Secondary	**2**	30.0 ± 0.0		**8**	44.50 ± 0.93	
Occupation						
Employee	**2**	28.0 ± 0.0	F=0.608 (0.616)	**5**	45.0 ± 0.0	F= 9.555* (<0.001*)
House wife	**14**	25.0 ± 3.84		**14**	43.57±1.91	
Manual worker	**8**	25.50 ± 2.78		**9**	44.56 ± 0.88	
Not work	**6**	26.33 ± 2.73		**2**	39.0 ± 0.0	
Income						
Not enough	**18**	25.78+ 3.69	t=0.391 (0.699)	**17**	44.35 ± 1.50	t=1.825 (0.079)
Enough	**12**	25.33 ± 2.53		**13**	43.08 ± 2.33	

Data was expressed in mean ± SD SD: **Standard deviation**
t: Student t-test **F**: **F for One way ANOVA test**
p: p value for comparison between the studied categories
*: Statistically significant at $p \leq 0.05$

Table (7): The relation between clinical data and overall total scores of patient's self-care practices post-operative (n =60)

Clinical data	Overall total scores of patient's self-care practices post-operative					
	N	Control group (n = 30) Mean ± SD.	Test of Sig. (p)	N	Study group (n = 30) Mean ± SD.	Test of Sig. (p)
Medical history:						
No	**14**	26.0 ± 2.77	t=0.627	**17**	44.35 ± 1.50	t=1.825
Yes	**16**	25.25 ± 3.64	(0.536)	**13**	43.08 ± 2.33	(0.079)
Prescribed medications:						
No	**14**	26.0 ± 2.77	t=0.627	**17**	44.35 ± 1.50	t=1.825
Yes	**16**	25.25 ± 3.64	(0.536)	**13**	43.08 ± 2.33	(0.079)
Receiving medication regularly:						
Yes	**12**	25.33 ± 2.53	t=0.391	**10**	45.0 ± 0.0	t=3.674*
No	**18**	25.78 ± 3.69	(0.699)	**20**	43.20+2.19	(0.002*)
Duration of cataract:						
<3m	**8**	26.13 ± 3.31		**10**	44.10 ± 1.66	
3 – <6m	**4**	25.25 ± 5.50	F=0.130	**4**	43.50 ± 1.73	F=3.608*
6 – 12m	**10**	25.20 ± 3.08	(0.941)	**11**	44.64 ± 0.81	(0.027*)
12 – 24	**8**	25.75 ± 2.55		**5**	41.60 ± 3.13	
Presence of cataract in:						
One eye.	**14**	26.0 ± 3.37	t=0.627	**15**	43.67 ± 1.76	t=0.365
Both eyes.	**16**	25.25 ± 3.17	(0.536)	**15**	43.93 ± 2.22	(0.718)
Presence of other diseases in the eyes:						
No	**30**	25.60 ± 3.23		**28**	43.71 ± 2.02	t=3.375*
Conjunctivitis	**0**	–	–	**0**	–	(0.002*)
Retinal detachment	**0**	–		**2**	45.0 ± 0.0	
Wearing eye glasses:						
No	**22**	26.18 ± 3.17	t=1.685	**24**	43.96 ± 1.94	t=0.876
Yes	**8**	24.0 ± 3.02	(0.103)	**6**	43.17 ± 2.14	(0.389)
Family history						
No	**14**	42.80±1.97	t=0.627	**12**	25.33 ± 2.53	t=0.391
Yes	**16**	42.80±1.97	(0.536)	**18**	25.78+ 3.69	(0.699)

Data was expressed in mean ± SD SD: **Standard deviation**
t: Student t-test **F**: **F for One way ANOVA test**
p: p value for comparison between the studied categories
*: Statistically significant at $p \leq 0.05$

4. Discussion:

Cataract is the most common reason for vision impairment and reversible blindness in developing countries. Also it affect negatively on patients health and quality of life as well as increasing the medical burden on the government **(Qiu et al., 2023).** Additionally, cataract disease may also impair a patient's autonomy in carrying out everyday activities and self-care **(Samuel et al., 2021)**. The nurse plays a crucial role in all aspects of cataract surgery focusing on post cataract surgery instructions and home self-care to prevent cataract surgery complications. Likewise, providing patients with a planned and organized nursing intervention after cataract surgery can greatly help patient s' significantly in achieving the intended outcomes **(Taha, 2021)**. The effectiveness of nursing intervention on patient undergoing cataract surgery has only been established in a small number of trials. In this regard, the main concern of the present study was to evaluate the effect of nursing intervention guidelines on knowledge and self-care practices among patients undergoing cataract surgery.

Concerning socio-demographic data. The results of this study indicated that, most of the studied patients in both groups were females, married, illiterate, had insufficient income and the mean age of study group was 52.57 ± 5.98 and 49.50 ± 7.92 for control group. Moreover, the findings have indicated that there was no statistically significant difference in sociodemographic data in the two study groups. This finding is supported by **(Elgazar et al ., 2017 & Lim et al., 2021 & Das et al., 2021 & Eldoushy et al., 2022),** found similar findings in a previous study. These findings could be explained by the fact that some biological and genetic differences between male and female, recent evidence suggests that biological factors such variations in ovarian hormone levels and particularly decreases in estrogen may contribute to the increased prevalence of cataract in women than men.

Moreover, according to American Academy of Ophthalmology, Age-related cataracts are caused by a variety of factors, including abnormal changes in lens proteins (crystallins) which cause their chemical and structural alteration and loss of transparency as well as changes in the ionic components of the lens. Compaction and stiffening of the central lens material (nuclear sclerosis) as new layers of cortical (outer lens) fibres continue to proliferate over time, (**Hugosson et al., 2020 & López Sánchez et al., 2021).**

Concerning clinical data, the results of the current study revealed that the vast majority of the patients in the two studied groups suffer from diabetes mellitus and hypertension with no statistical differences between both groups. This finding is supported by **(Alfaqeeh et al ., 2020 & Khan et al., 2023),** reported that diabetes is associated with an approximately two-fold increased detection rate of cataract as well as hypertension plays an important role in the development of cataract. It could be due to the fact that hyperglycaemia over time can lead to structural changes in the lens of the eye that can accelerate the development of cataracts. **(Kiziltoprak et al ., 2019 & American Diabetes Association 2023)**. Also, this finding in congruence with **(Jiang et al ., 2023)**, illustrated that high blood pressure is consider one of the main risk factors of cataract formation. This could be justified by that hypertension could induce conformation structure alteration of proteins in lens capsules, thereby exacerbating the cataract formation.

As regards family history, the duration of cataract and the occurrence of cataract in both eyes, the present study revealed that, the majority of the patients in the two studied groups have a family history related to cataract, had cataract in both eyes and the duration of the cataract was more than 6 months , with no statistical differences between both studied groups .These results stand in line with the findings of **(Elgazar et al ., 2017 & E Eldoushy , 2022),** reported that, most of their studied patients have a family history of cataract and majority of them were suffering from cataract in the both eye with no statistical significant differences in both their study and control group. However, this finding contradicts with the findings of (**Qiu , 2023)** in relation to only occurrence of cataract in both eyes, mentioned that most of their studied patients were suffering from cataract in the left eye and only about a quarter of them were suffering from cataract in both eyes. This finding may be justified by that presence of some factors that contribute to the occurrence of cataract on both eyes, such as diabetes mellitus and hypertension.

Regarding total scores of patient's knowledge pre and post implementation of nursing intervention guidelines. The current study showed that the mean of total knowledge scores' demonstrated a statistically significant improvement for the study group after nursing interventions compared to the control group . Also, the current study findings showed that study group mean knowledge scores' improved more statistically after nursing interventions than they did before. These findings were compatible with **(Wisely et al., 2020),** mentioned that pre cataract surgical education and counselling improves patient knowledge about cataract surgery, decreases anxiety related to surgical procedures and improves post-operative

patient's outcomes. Also it was into steady with (**Eldoushy, 2022)**, confirmed that the majority of their studied patients had good post nursing intervention knowledge level.

Moreover, the existing study findings have been in similarity with **(Newman-Casey et al., 2015**), concluded that patient education and counselling, especially for those with restricted access to healthcare, such as female and illiterate patients, both increased understanding and decreased decisional conflict concerning cataract surgery. The worldwide burden of cataract and other types of blindness may also be lessened with greater adoption of excellent nursing intervention guidelines, which may also enhance patient outcomes following cataract surgery.

Concerning self-care practices, the present study demonstrated highly statistical significant improvements in the study group regarding total scores of self-care practices post nursing interventions in the first and second follow-up periods compared with the control group. This finding contradicts the finding of **(Elgazar et al ., 2017)**, illustrated that about two third of their patient's in the study group had unsatisfactory level of knowledge and self-care practices regarding eye hygiene and activities of the daily living post cataract surgery. However, the finding of the present study is supported by the findings of **(NA Mahfouz, 2019 & Eldoushy, 2022),** ascertained that their studied patients in the experimental group had significantly higher awareness and self-care practices than the control group post nursing interventions. This might have happened as a result of nursing interventions that were successful in raising patient knowledge of cataracts and their own self-care routines.

Concerning the relationship between the socio-demographic and overall total score of patient's self-care practices post cataract surgery, the current study illustrated that a statistically significant association was found between socio-demographic and total score of self-care practices post cataract surgery regarding to gender and occupation. This finding is not in agreement with **(Yotkumlue, 2023),**found that bio-socio-demographic factors did not correlate with self-care behaviour's post cataract surgery. However, the finding of the current study agrees with a study conducted by **(Gupta et al., 2019)**, reported that female patients significantly compliance with self-care practices and follow up following cataract surgery. This could be due to that most of the female patients are married and housewives. In our Egyptian society, women are often responsible for their families. For this reason, they may be more committed to applying the rules of eye self-care practices after cataract surgery, so that they can maintain their vision post-operative and play their role towards their family.

The present study also reflected a statistically significant association was found in the study group between overall total scores of self-care practices post cataract surgery and clinical data regarding to duration of cataract and presence any others eye diseases. This finding is contradicts with **(Yotkumlue, 2023)**, reported that clinical factors did not significant correlate with self-care practices after cataract surgery. The results of the current study can be explained by that patients with cataract may be more concerned about their condition and fear loss of vision, also fear of post cataract surgery complications or the occurrence of any other eye diseases, and therefore greatly committed to self-care practices postoperatively.

Finally, the results of this study confirm that postoperative self-care practices can be enhanced by offering nursing intervention instructions about knowledge and self-care practices to patients undergoing cataract surgery. As a result, the multidisciplinary team ought to proactively collaborate to set up a programme for health education regarding appropriate post-operative behaviour upon returning home. By letting patients and their families ask questions and participate in the instruction, families can share knowledge and encourage patients in taking care of themselves when they get back to their homes following cataract surgery. **(Yang et al., 2022 & Yotkumlue, (2023).**

Conclusion

Focusing on the results of the current study, it can be concluded that, application of nursing interventions guidelines for adult patients undergoing cataract surgery reflected a highly statistically significant impact on patients' expected outcomes related to knowledge level and self-care practices after cataract surgery, the study group showed improvement in all of their total scores of knowledge level and self-care practices after application of the nursing interventions guidelines compared with the control group.

Recommendations

Based upon the results of the current study, the following recommendations are suggested:

- Ophthalmic nurses should receive periodic in-service training programs to update and improve their awareness about self-care practice regarding cataract surgery to improve patients' post-surgical expected outcomes.
- Patients should have access to a thorough, illustrated, and simplified pamphlet and posters that include advice for postoperative self-care practices after cataract surgery. These materials should be made available in healthcare settings.
- Health care professionals in outpatient clinics run educational campaigns to stress the value of routine eye exams for the early detection and management of cataracts.
- Replication of the current study with a bigger statistical sample size selected from different regions and a longer follow-up period in order to get more broadly applicable findings.

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الملخص العربى

تأثير التدخلات التمريضيه على المعرفة وممارسات العناية الذاتية لدي المرضى البالغين الذين يخضعون لجراحة زرع عدسة العين

مقدمه: يمثل إعتام عدسة العين نسبة كبيره من العبء العالمي لفقدان البصر في جميع أنحاء العالم. والتي قد تؤدي التدخلات التمريضية غير الكافية بعد العملية الجراحية والمتعلقة بالمعرفة وممارسات العناية الذاتية إلى مضاعفات خطيرة للمريض الذي يخضع لجراحة زرع عدسة العين.

الهدف: تهدف الدراسة إلى تقييم تأثير التدخلات التمريضيه على المعرفة وممارسات العناية الذاتية لدي المرضى البالغين الذين يخضعون لجراحة زرع عدسة العين.

التصميم: تم استخدام تصميم البحث شبه التجريبي. وأجريت الدراسة في قسم جراحة العيون والعيادات الخارجية للعيون. بالمستشفى الرئيسي الجامعي بالاسكندرية. وتكونت العينة من 60 مريضاً بالغاً من الذكور والإناث. و تم استخدام أداتين لجمع البيانات؛ الأداة الأولى: تقييم مريض زرع عدسة العين: جدول مقابلة منظم، تم تقسيمها إلى ثلاثة أجزاء، الجزء الأول: البيانات الاجتماعية والديموغرافية للمريض، الجزء الثاني: البيانات السريرية للمريض والجزء الثالث: مستوى معرفة المريض. الأداة الثانية: مقياس ممارسات العناية الذاتية.

النتائج: (96.7%، 96.7% على التوالي) من المرضى في المجموعة الضابطة كان لديهم مستوى غير مرضي من المعرفة قبل وبعد تنفيذ التدخل التمريضي، مقارنة بـ (90%، 36.7% على التوالي) من المرضى في مجموعة الدراسة. بالإضافة إلى أن النتيجة الإجمالية لمستوى ممارسات العناية الذاتية بعد العملية الجراحية كانت غير مرضية (100%، و100% على التوالي) للمرضى في المجموعة الضابطة في فترتي المتابعة الأولى والثانية بعد الجراحه، مقارنة بالمستوى المرضي لممارسات العناية الذاتية (100٪، 98٪ على التوالي) في مجموعة الدراسة.

الخلاصه والتوصيات: اظهرت مجموعة الدراسة تحسن واضح في مستوى المعرفة وممارسات العناية الذاتية بعد تطبيق التدخلات التمريضية مقارنة بالمجموعة الضابطة. واوصت الدراسه بتكرار تطبيق الدراسة الحالية مع حجم عينة إحصائية أكبر يتم اختيارها من مناطق مختلفة وفترة متابعة أطول من أجل الحصول على نتائج قابلة للتطبيق على نطاق أوسع.